

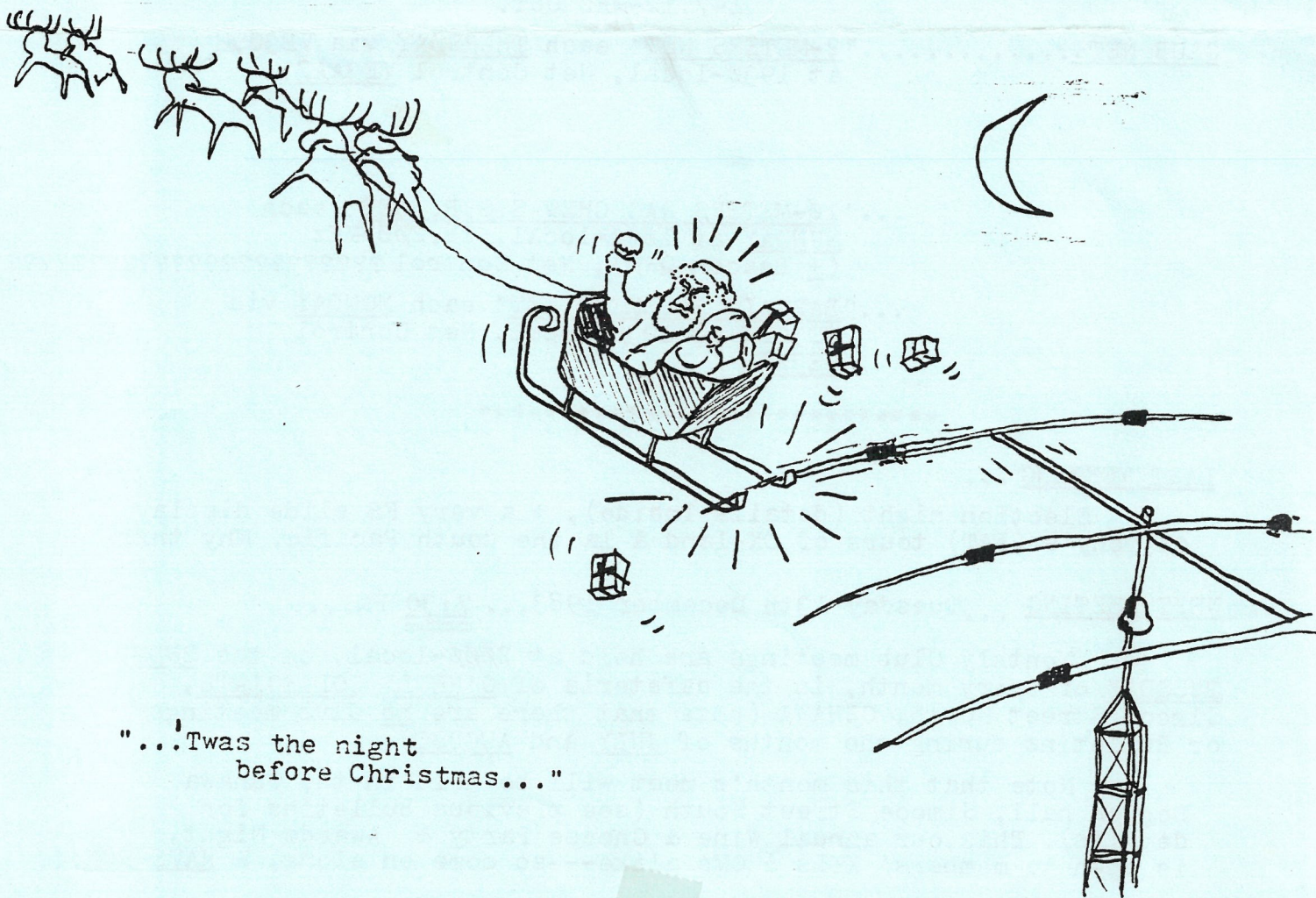
First Class Première classe

CANADA

32

DEC. 1983

First Class Première classe



"...Twas the night
before Christmas..."

SPARKS

The Official Organ of
THE NORTH SHORE AMATEUR RADIO CLUB, INCORPORATED.

OFFICERS & EXECUTIVE:

PRESIDENT.....DOUG SMITH.....VE3MKC.....786-2086
VICE-PRESIDENT.....RALPH DAY.....VE3CRK.....576-8738
TREASURER.....MAC McFARLANE...VE3XI.....723-8484

SECRETARY.....COLIN BELL.....VE3CEU.....723-7842
REGISTRAR.....KEITH WYARD-SCOTT...VE3GDF.....723-5758
EXECUTIVE ASSISTANT...DON DEWEY.....VE3GEN.....668-0577
GET-WELL-CARDS.....TED BRANT.....VE3ADD.....668-3561
EDITOR.....EDDY SWYNAR.....VE3CUI.....723-4326

--DECEMBER 1983--

CLUB STATION.....VE3NSR

CLUB REPEATER.....VE3OSH 147.72-MHz IN,
147.12-MHz OUT.

CLUB NETS....."2-METERS NET" each THURSDAY via VE3OSH
at 1930-local, Net Control VE3AAF;

..."10-METERS RAG CHEW S.S.B. NET" each
SUNDAY at 1000-local, 28.200-MHz
(+ Beacon QRM), Net Control ??????????????????????

..."BARGAIN BASEMENT NET" each MONDAY via
VE3OSH at 1930-local, Net Control
VE3XI.

LAST MEETING ...

Election night (details inside), + a very FB slide display
of Tony's (IAT) tours of DX-land & la the south Pacific. Mny tnx.

NEXT MEETING ...Tuesday 13th December 1983... 7:30 PM...

Monthly Club meetings are held at 2000-local, on the 2ND-TUESDAY of every month, in the cafeteria of O'NEILL COLLEGIATE,
Simcoe Street North, OSHAWA (note that there are no Club meetings
or Bulletins during the months of JULY and AUGUST).

Note that this month's meet will be held in the Oshawa
Legion hall, Simcoe Street South (see previous Bulletins for
details). This, our annual Wine & Cheese Party & Awards Night,
is open to members' XYLS & OMS alike---so come on along, & HAVE FUN!!!

FROM THE EDITOR...

December at last---time now for the undersigned to cover-up the mil and retire as Bulletin Editor after 12 pleasing, yet distressing, months.

Pleasing? Yes indeed! The monthly grind of churning out "the rag" was a genuine challenge. No more interesting chore exists within the Club than the position of Bulletin Editor; it's an excellent funnel for the release of pent-up urges (creative or otherwise!), a one-man soapbox with a captive monthly audience of 120+ readers. As an august member of the Executive body once told me---for better or worse---I've managed to put the "Bull" back into "Bulletin"...and I had a darn good time doing it, too.

But now on to Part II, the distressing chapter. This could very well be the last issue of "Sparks" that you or anyone else in the Club will receive for a very long time. Why? It's a reflection of the attitude of our entire membership, this N.S.A.R.C.---I have never, in my entire 12+ years' association seen such a lifeless, lackluster, apathetic group as I've seen this year; never before have I been witness to the travesty of an entire Executive group being voted-in by acclamation. It's shameful.

When the spirit of competition withers within a Club, its core, its essence, indeed its very spirit dies. First to fall victim to any organization's lethargy is the group's voice itself...yes, I'm referring to "Sparks"....

....folks, we have no bulletin editor for the 1984 year.

73


-Eddy
VE3CUI

THE NEW EXECS...

Club apathy notwithstanding, sincere thanks to the following men for accepting the challenge of being on the Club Executive for the upcoming year:

TERRY SHORT.....VE3GTS;
JOE WHITE.....VE3IHS;
BILL SUTTON.....VE3MLW;

/cont.

/cont.

BILL FORTUNE.....VE3NTI, and,
MAC McFARLANE.....VE3XI.

The respective position each will occupy shall be announced in the very near future. Again, thanks for your help, fellas---and many thanks to the guys who "held the fort" in 1983.

FIELD DAY 1983...

The November issue of "QST" says it all---however, for the benefit of A.R.R.L. non-members, our very own VE3NSR secured first place in Canada for the "4A" class, with a grand total of 1609-QSOs (4862-points). Our closest Canadian competitor was VE3JJ/3, with 1370-QSOs (4466-points).

In all, 5 Canadian groups competed within the "4A" classification, the lowest Canadian score coming from VE3SVC (317-QSOs, 1616-points) in this category.

In the overall scheme of things, VE3NSR scored 29th place; within the "3A"/"4A"/"5A" groups combined, VE3NSR placed 6th, continent-wide. Congratulations indeed are in order for the gang of 26 who helped elevate our Club to such lofty heights this year.

CANADIAN "4A" RESULTS:

VE3NSR.....	1609-QSOs/4862-points;	
VE3JJ/3.....	1370- "	4466- " ;
CY1JO.....	691- "	2614- " ;
VE3RAT.....	988- "	2378- " , and,
VE3SVC.....	317- "	1616- " .

-BILL
VE3MLW.

\$HOP, \$WAP, & \$WINDLE...

FOR SALE---"Terminet 300" printer, modified to friction-feed or sprocket-feed paper; standard RS232 interface. Asking \$200.00. Phone ANDY (VE3IQV) 576-4851.

VE3IATopics 4

So far then in this series we have seen that so-called normal ionospheric behaviour is an artifact of the irradiation of the earth's upper atmosphere by UV "light" from the sun. Most of this energy comes from sunspots --- the little pockmarks of furious magnetic activity inbedded in the solar face. Even a quiet sun at the bottom of the sinusoidal 11 year sunspot cycle radiates some UV but a typical solar flux of about 66 at these times may increase to daily figures of 400 or more when activity peaks. Solar flux is a convenient index of solar activity representing the intensity of incoming UV at 2695 MHz measured daily at Ottawa and broadcast hourly over WWV.

All other things being equal (which of course they never are!) a high solar flux means good conditions. The ionosphere is massaged by the incoming UV to its most refractive; the MUF rises, and all is well. Pull the plug and the MUF drops, 10 metres is returned to the lost-luggage-locker in the sky and we all wind up crawling over each other on 80m. Great fun! There are two more manifestations of UV activity important to us --- one normal and the other not so. Each day the sun comes up (you read it here first folks!) and the amount of UV reaching the illuminated half of the globe increases to peak at local midday. This has most impact in the D-layer of the lower ionosphere where ion densities drastically increase, particularly in the summer months. The result is the familiar great blotter in the sky effect where the low bands fade for all but the most local paths. Come nightfall and the atmospheric density of the D leads to rapid recombination of ions to atomic form, a drastic decrease in absorption, and spectacular improvement in low-band paths.

Ahhh absorption 'tis of thee!!! When the sun goes off its nut as it is particularly prone to do on the down-side of a cycle, like right now, a number of nasty things happen of which the most remarkable is probably the SID --- or Sudden Ionospheric Disturbance. Most of us have experienced one of these and let's face it they are about as mysterious as puberty and not near as much fun. The first you know about ole SID is one moment (always in daylight) you are sitting at the rig listening to whatever when all of a sudden over a space of as little as 30 seconds every signal but those unlucky enough to be groundwave to you completely disappear for a period ranging from minutes to several hours! So dramatic is this complete fade that even after experiencing one before you are very liable to check the rig and antenna to make sure you have not suffered equipment failure. What has happened is a solar flare --- a gigantic outpouring of radiation and particulate matter from the sun. The radiation component of this travels at the speed of light to earth and 4 minutes from departure the UV wavelengths are stirring the D layer into such a fever that all sky-wave signals completely disappear as far as the daylight half of the earth is concerned.

Well it looks as though we need one more column to dispose of the stuff that sprays out of the sun in a solar disturbance at more leisurely speeds and then I really should get on to more antenna-related topics. Don't forget to climb your tower before bedtime and scrub your little part of the ionosphere. Those with small towers will need a longer broom handle!!

73's,

Tony

VE3IATopics 5

If brevity is the soul of wit then 1983 was a very funny year! Hope you had a good one. Now when last we left Q1 Sol he was spraying junk in the direction of Terra at a variable speed that would get it all here anywhere from 12 to say 48 hours after a solar flare. Most flares do not produce vast quantities of UV (unlike SIDs) but rather a more modest increase which may enhance conditions on the middle HF bands for a day or so. And then the brown stuff hits the fan!

The garbage that a decent solar flare throws at us is quite mixed in both its nature and its effects on the earth. For the most part it comprises electrons, protons, and other particulate matter. Normal solar radiation travels at the speed of light in a straight line from the sun. The minor proportion of it that intersects the earth in its orbit is neatly divided around us by the protective Van Allen belts well above the ionosphere, forming a tear-drop shaped hole in the solar wind, with a downstream tail. Particulate material on the other hand travels much more slowly and sprays from its source on the spinning sun rather like an unfolding hose that has been suddenly turned on. The originating flare need not be on the side that faces us and there is no guarantee that the ejecta will even intercept the earth --- which is a bit tough on the propagation prophets but nice for the rest of us.

Particles arriving at earth rip through the Van Allen belts like hot shots at an amber light. Closer in, the charged particles tend to become trapped in the earth's magnetic field and many of them wind up oscillating from one geomagnetic pole to the other with a period of several seconds. This tends to get on the nerves of the E and F layers in particular and they may break up into small patches to discuss the whole thing, causing multiple reflections (echoes) to signals still foolhardy enough to be trying for a normal trip around the globe. The effect is much more pronounced in the vicinity of the geomagnetic poles since it is here that the lines of magnetic flux cut through the ionosphere, causing aurorae. Vast magnetic eddies circulate in the ground as well and these add greatly to the potential for severe absorption and general all-round beating up on HF signals.

For the sake of simplicity I have combined a discussion of two major phenomena above --- the polar blackout, and the ionospheric storm. Polar blackouts produce one phenomenon whose effects are felt well beyond the polar regions --- the polar cap absorption event (PCA) --- of which more later. All these disturbances tend to increase absorption on the bands making signals weaker than normal. Their effects tend to be concentrated around the "auroral zone"; a circle of variable radius (depending on the severity of disturbance) centered on the north and south geomagnetic poles. These you can find on any globe near latitude 76 degrees; South of Adelaide Australia, and North of Winnipeg Manitoba.

All very well, I hear you cry but what does this all have to do with my search for a signal that will shrink haemorrhoidal tissue in Tokyo!!?? Yes Virginia there is an end to this absorbing tale and I will try and get a bit closer to it --- next time!

73's,

Tony

VE3IATopics 6

The reason that HF waves can propagate beyond the horizon is of course that they are bent at the ionosphere and turned back to earth. Conventionally we believe that the wave, arrived at earth, is re-reflected back to the heavens and so it proceeds hoppity skip to the distant target area. Every one of you has seen the traditional vertically zig-zagging diagram of this many times. Is it true? Well maybe so and maybe not and maybe sometimes.

With many others I have always had a bit of trouble envisaging this model of propagation as "normal" although it does satisfactorily explain some things some of the time. The problem is that if you start adding up the ground and sky losses at each bounce over a very long haul they just don't square with the sometimes extremely strong signals that we observe. Now one of the problems of living here in the northlands is that there is no ham population of any great size antipodally placed from us to help us ponder the great wonders of sending signals more than half way around the globe. New Zealand au contraire is conveniently located antipodal to Gibraltar. Come with me for a bit of DX at ZL1AZV.

In NZ on a winters afternoon the 20m long path opens across the South Pacific, South America, up over Gibraltar, to the Caucuses and beyond. Take a globe in hand and follow my signal across the winter afternoon of the southern hemisphere, to evening in Ecuador. Speed through the summer night in Spain, on to midnight in Moscow and breakfast in Ulan Bator. Lean over my shoulder as we fill the log all afternoon with entries that nearly all have one thing in common; the strong stations we talk to are virtually all just going to breakfast. Signals peak about one hour before sunset. For an hour or two my ZL neighbours are in on the action too and it seems that whether one is running a 4 element monobander at 75 feet or a little tribander at 30 there are stations for all. With dusk the F2, weakly ionised by the winter sun, rapidly loses interest in bouncing signals and the band flattens and dies after sunset.

All this time my beam has stayed fixed at bearing 135 degrees, across South America, and yet you and I have worked nothing from south of the equator. In fact we know that there it is now late night and the band in the same sorry state that we will experience here very soon. What gives? These guys are closer, and in the same direction. Their signals will bounce fewer times, will be less absorbed, should be stronger. Where are they? And NO they are not in bed smart ass; they are DXers and they NEVER sleep!

The answer HAS to be that under these afternoon LF conditions, and also on Summer evenings, the signals are hardly returning to earth at all. They leave the transmitting antenna at a non-critical 30 degrees or so (a modest antenna at modest height) to deflect at the ionosphere and then to either travel trapped within the conducting layer itself (the fibre optics model) or skid with low loss beneath the F2 layer (the chordal hop model). As they pass into daylight they fetch up against the tilted lowering daytime ionosphere and are deflected to earth, again arriving at relatively high angles. Good news for little low guns!

73's,
Tony

In order to receive the monthly bulletin without interruption, the CLUB MEMBERSHIP must be renewed annually by 31st January. Membership dues will be accepted by MAIL ONLY ; please make cheques payable to THE NORTH SHORE AMATEUR RADIO CLUB Inc. Full membership is \$15.00, Associate membership, second family members, and student membership are \$6.00. Please mail to: KEITH WYARD-SCOTT, VE3GDF, 298 DOVER STREET, OSHAWA, ONTARIO L1G 6G6. Attention: N.S.A.R.C.

THE NORTH SHORE AMATEUR RADIO CLUB INC.

NAME.....

CALL.....

ADDRESS.....

POSTAL CODE.....

TELEPHONE NUMBER.....

***NOTE:** Prospective Full members who submit their remittance such that dues are received on or before 1st January 1984 by the Registrar, are subject to an annual fee of \$13.00 only. Applications after 1st January 1984 are subject to the full \$15.00.